Ipswich River Restoration:

U.S. EPA Targeted Watersheds Grant Program

The Massachusetts Department of Conservation and Recreation (DCR), with funding from the U.S. Environmental Protection Agency, is piloting innovative approaches to reduce severe low-flow problems in the Ipswich River watershed. The pilot projects focus on two strategies:

- Low-Impact Development (LID) techniques that recharge stormwater to the groundwater
- Water conservation techniques that reduce demand on water supplies, especially during dry months

The purpose of the pilot projects is to:

- *Quantify* the benefits of each strategy
- *Demonstrate* the application of these strategies locally

The U.S. Geological Survey will use data from the demonstration projects in a sophisticated computer model. This model will simulate the effect on river flows if LID and water conservation techniques were used throughout the watershed.

The program consists of nine demonstrations.

Nine Demonstration Projects

Low-Impact Development

1. Low-impact-development subdivision
2. Green roof
3. Permeable paving materials in a parking lot
4. Lake quality improvement using LID retrofits to replace conventional stormwater discharge

Water Conservation

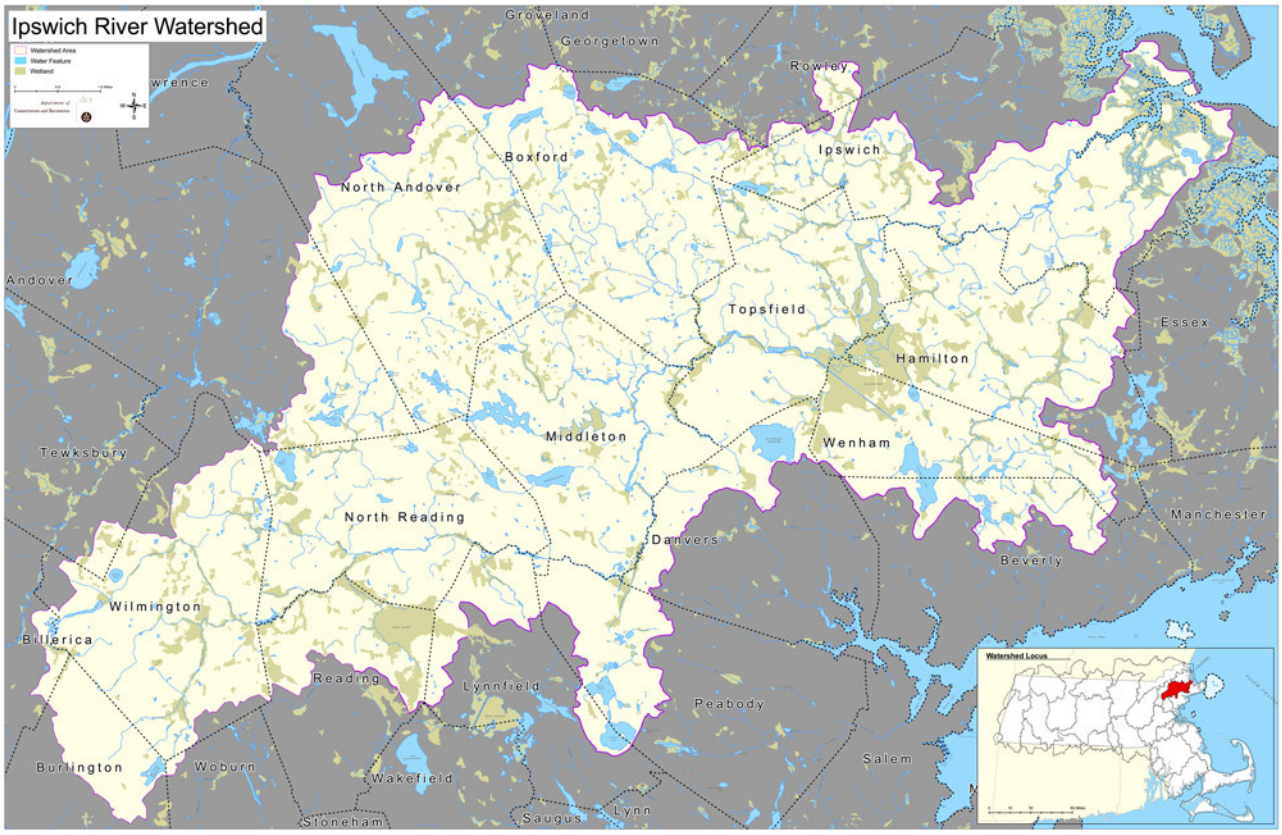
5. Roof-runoff harvesting for outdoor use
6. Soil and turf amendments at municipal athletic fields
7. Water conservation retrofits and appliance rebates
8. Weather-based irrigation controllers
9. Water meter replacements and monthly water billing

Why the Ipswich River?

Designated the third most endangered river in America in 2003, the Ipswich River has experienced repeated low-flow and no-flow periods: segments of the upper river have gone dry in 5 of the last 10 years, resulting in fish kills and other ecological damage.

Wasteful use of water, “out-of-basin” transfers, and changes in land use – for example, from forest to suburban subdivision – have all contributed to these low-flow conditions. Some facts:

- The watershed supplies drinking water to 23 communities and 330,000 residents and businesses.
- Outdoor irrigation is a major stress on the river: studies indicate that the amount of water needed to restore natural flows is about equal to the amount used for lawn watering.
- The amount of water pumped in summer – reflecting uses for outdoor irrigation, pools, and car washing – is often twice the year-round average.
- 80% of the water withdrawn from the basin is pumped out of the basin as drinking water or wastewater.
- Land-use changes continue at a rapid pace, with almost 1,000 acres per year being developed since 1971, on average, in the Ipswich River watershed communities.



LID Demonstrations

Four projects will demonstrate low-impact development approaches. LID addresses the problems created by land development through a variety of strategies:

- LID site planning – an approach that minimizes land disturbance and preserves open space
- Bioretention areas, swales, and rain gardens – vegetated areas designed to retain and infiltrate stormwater
- Permeable paving – paving materials that allow stormwater to percolate through the soil
- Green roofs – vegetated roofs that reduce and filter stormwater runoff
- Alternative roadway and parking layouts – designed to reduce impervious land cover

From MA Smart Growth Toolkit

Water Conservation Demonstrations

Five projects will demonstrate innovative water conservation approaches:

- Rainwater harvesting – capturing rainwater from rooftops and storing it for use outdoors.
- Water conservation retrofits and rebates – providing site-specific information on water-savings potential; free installation of more-efficient devices; and rebates on large appliances.
- Water-efficient athletic fields – amending soils and using drought-resistant turf to reduce water use.
- Weather-based irrigation controls – installing systems that deliver irrigation water based on weather data rather than arbitrary factors such as odd-even watering days.
- Water billing changes – increasing billing frequency and using a progressive billing rate (higher rates for high-volume users) to promote voluntary reductions in water use.

For more information,
see www.mass.gov/dcr or contact:
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